

Application No.: 09/892,027

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A method for improving black pixel print quality in an ink color printer having at least one color ink and black ink, comprising:

selecting a fast print mode, wherein fast print mode is accomplished by increasing droplet spacing to reduce the number of rows and columns that must be marked thereby increasing print speed and printing no more than two droplets at a single location;

determining a location on a substrate where a black pixel is to be printed;

printing a single droplet of color ink at the location, and

printing a single droplet of black ink on top of the color droplet at the same location, wherein the droplet of color ink and the droplet of black ink are of substantially the same size, forming a single black pixel having increased density of substantially the same size as each of the black and color droplets at the location when the two droplets solidify.

2. (Original) The method of claim 1, wherein the color printer includes cyan, magenta and yellow and wherein the step of printing a droplet of color ink comprises printing a droplet of one of cyan ink, magenta ink and yellow ink.

3. (Previously Presented) The method of claim 2, further comprising determining a plurality of locations on a substrate where a black pixel is to be printed;

printing a droplet of color ink at each of the locations, wherein cyan, magenta and yellow droplets are equally distributed among the plurality of locations; and

printing a droplet of black ink on top of each droplet of color ink at each black pixel location, wherein the droplet of color ink and the droplet of black ink are of substantially the

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same size.

4. (Currently Amended) A method for improving black print quality in an ink color printer having at least one color ink and black ink, comprising:

selecting a fast print mode, wherein draft mode is accomplished by increasing droplet spacing to reduce the number of rows and columns that must be marked thereby increasing print speed and printing no more than two droplets at a single location;

providing an image to be printed on a substrate;

determining locations within the image where black pixels are to be printed;

for each location where a black pixel is to be printed:

printing a single droplet of color ink at the location, and

printing a single droplet of black ink on top of the color droplet at the same location, wherein the droplet of color ink and the droplet of black ink are of substantially the same size, forming a single black pixel having increased density of substantially the same size as each of the black and color droplets at the location when the two droplets solidify printing a droplet of color ink at least one of the black locations; and

printing a droplet of black ink at each of the black locations, wherein for each droplet of color ink printed at one of the black locations, the droplet of black is printed on top of the color droplet and the droplet of color ink and the droplet of black ink are of substantially the same size.

5. (Currently Amended) The method of claim 4, wherein the color printer includes cyan, magenta and yellow and wherein the step of printing a single droplet of color ink comprises printing a single droplet of one of cyan ink, magenta ink and yellow ink at each of the black locations.

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6. (Original) The method of claim 5, wherein the cyan, magenta and yellow droplets are equally distributed among the black locations.

7. (Original) The method of claim 5, further comprising:
using three mutually exclusive 33.3% bit patterns, one for each of cyan, magenta and yellow, to select which of cyan, magenta and yellow to print at each of the black locations.

8. (Original) The method of claim 5, further comprising:
using a stochastic halftone screen to select which of cyan, magenta and yellow to print at each of the black locations, wherein the upper 1/3 thresholds are used to select cyan, the middle 1/3 thresholds are used to select magenta and the lowest 1/3 thresholds are used to select yellow.

9. (Original) The method of claim 5, further comprising:
using three non-aligned halftone screens to select which of cyan, magenta and yellow to print at each of the black locations, using

$$K = \text{MIN}(C, M, Y)$$

$$C = C - K$$

$$M = M - K$$

$$Y = Y - K$$

$$C = C + (C_PER * K)$$

$$M = M + (M_PER * K)$$

$$Y = Y + (Y_PER * K)$$

to generate CMYK to be halftoned by non-aligned screens, wherein $\text{MIN}(C, M, Y)$ is the minimum of C, M and Y, C_PER is the percentage of black to be printed with cyan droplets, M_PER is the percentage of black to be printed with magenta droplets, Y_PER is the percentage of black to be printed with yellow droplets.

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10. (Original) The method of claim 5, further comprising determining the ratio of cyan droplets, magenta droplets and yellow droplets printed with the black droplets by gray balancing.

11. (Original) The method of claim 5, further comprising adjusting the ratio of cyan droplets, magenta droplets and yellow droplets printed with the black so as to minimize chromaticity in the black.

12. (Original) The method of claim 11, wherein the ratio of cyan droplets is approximately 31%, the ratio of magenta droplets is approximately 38% and the ratio of yellow droplets is approximately 31%.